REMARKS

Applicant has reviewed and considered the second Office Action dated June 18, 2002. Figure 2 is amended; claims 1, 15, 30 and 39 are amended. Claims 1-43 are pending in the present application. It is noted that although the pending Office Action makes reference to claim 44, Applicant's response to the prior Office Action corrected the numbering of claims 38-44, renumbering them as claims 37-43, because no claim 37 existed in the claims as filed. Thus, claims 1-43 are pending.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "**Marked-up Version Showing Changes.**"

Claim Objection

Claims 1, 15, and 30 were objected to because of certain informalities. Claims 1, 15, and 30 are now amended to overcome the objections.

Rejections under 35 U.S.C. § 102(e)

Claims 1, 15, and 30 were rejected under 35 U.S.C. § 102(e) as being anticipated by Yanagidate. Applicant respectfully disagrees with the rejection for at least the following reasons.

Applicant's invention deals with communication between entities in disparate address realms. They are disparate in that communication from one address realm to the other only occurs if a message sent across the boundary between the two realms has an address valid in the receiving realm. This can occur between two private networks that may have overlapping addresses, in which case an internal address in one private network must be made unique to be valid when it is used externally, i.e., in the other network. It can also occur between a private network with private or internal addresses and a public, external network, such as the Internet, in which unique and properly assigned IP addresses must be used. Thus, the terms "internal address" and "external address" refer to two different sides of a boundary between two disparate address realms, from the viewpoint of one side. The present invention focuses on an address

translation facility on one side of an address realm boundary and providing control services to the applications on the same side of such boundary.

In the Internet context, the scarcity of externally valid IP addresses leads private and local networks to assign addresses valid only internally, i.e., within a local network, to applications running within that network. When such an application (e.g., Application A) needs to communicate with the global IP network, an externally valid or global IP address can be correlated with the internally valid address. The correlation is defined by a translation rule that is implemented in a conventional NAT (Network Address Translation) device, where the NAT is associated with the network where Application A runs. The NAT then translates Application A's external IP address into its internal address on messages incoming to Application A and translates Application A's internal address into the assigned external address on messages outgoing from Application A. The address translation rule may be permanent but is more likely temporary, to allow sharing of the limited external IP addresses. In a conventional NAT, Application A is assigned an external address only when the NAT determines the need. The conventional NAT determines the need and makes the assignment when it needs to handle an incoming or outgoing IP message packet. Application A can only send IP formatted message packets to the conventional NAT or receive them from the NAT. The conventional NAT makes the address translations, and also sets up a translation rule where one is needed and discards the rule when it is no longer needed. These operations are done automatically, without Application A's involvement or control.

Yanagidate discloses essentially a conventional NAT device. More specifically, Yanagidate discloses an address translating connection device 14 that permits a device in a first network (reference no. 1, Fig. 1; reference no. 11, Fig. 2) employing global addresses to make an inquiry to obtain a global address of an internal terminal located in a second network (reference no. 2, Fig. 1; reference no. 12, Fig. 2) (see column 4, lines 13-16). The inquiry is made by designating the host name of the internal terminal and is sent from the first network. When an inquiry is received from the first network, the address translating connection device 14 takes steps to ensure that the private (internal) address correlated to the host name is also correlated to an available global address (column 2, line 55 to column 3, line 14). Accordingly, in Yanagidate, the inquiry is a request from the first network to an address translating connection

device associated with a second network to ask for a global address that already has been given to – or that in response to the inquiry may be given to -- an internal terminal (or application) on the second network. In Yanagidate, the internal terminal (or application) on the second network is not involved in the initiation or selection of the translation rule that embodies the IP address assignment.

On the other hand, in the claimed invention, a first application in a first address realm sends a service request message (not an outgoing packet message) via a control channel to an address manager, requesting that an address valid in the second (external) address realm (e.g., Internet IP address) be assigned to the first application itself. The requested external address will be associated with a specified internal address of the first application (valid in the first address realm, or "private" in Yanagidate's terminology). The address manager not only assigns but provides the first application access to the requested external address (valid in the second address realm). This facilitates the first application's communication of the requested external address (valid in the second address realm) as message packet data to the second application. Accordingly, the request made by the first application and handled by applicant's address manager and control channel is to obtain an address valid in the second address realm to be associated with the first application's own specified internal (valid in the first address realm) address. The first application is provided a control channel to make the address request and gets access to its own external address. This permits the first application's communication of the external address (valid in the second address realm) as message packet data to the second application, which may be a peer application. That is, it also provides the first application control over communicating that address (see amended claim 30).

Yanagidate fails to disclose or teach having an address manager receiving a service request via a control channel from a first application for assignment to such first (requesting) application of an external address (valid in the second address realm). In contrast to Applicant's invention, in Yanagidate the address-translating connection device handles an address request that comes from the second or external address realm. As stated in the Abstract:

> An address-translating connection device which makes it possible to dynamically assign an IP address to a private address when a connection is made to inside of a LAN from outside.

Yanagidate, Abstract, first sentence (emphasis added). In applicant's invention the first application that initiates dynamic address assignment is within the first address realm, i.e., inside the LAN, when the first address realm consists of a LAN.

Yanagidate discloses an address-translating connection device for dealing with connections and address assignments initiated from outside of a LAN, not a system for empowering an application for making a service request by means of a control channel to its own NAT, i.e., to the NAT that performs address translation for message packets flowing into and out of the LAN on which that application resides. Providing an application with this control channel communicating with the address manager facilitates (among other things) peer-to-peer application communication between disparate networks as disclosed in the present invention. There is no motivation or suggestion in Yanagidate that its address lookup table and IP address control table be used to establish a translation rule, except "when a connection is made to inside of a LAN from outside."

Accordingly, Applicant respectfully submits that claims 1, 15, and 30 patentably distinguish over Yanagidate.

The respective dependent claims rejected under 35 U.S.C. 102(e) in view of Yanagidate are distinguishable as well, a fortiori because of their additional features. With regard to dependent claims 2-3 and 16-17, it is submitted that Yanagidate only shows a single address for any terminal and therefore does not teach requesting either a terminating address or an originating address.

With regard to claims 4-5 and 18-19, Yanagidate refers to first network 1 as employing global addresses and second network 2 as having a terminal 2a that has a private address (Yanagidate, col. 1, line 46 to col. 2, line 20). Fig. 2 shows a similar configuration in which network 11 is described as the Internet, with network 12 being a LAN using private addresses. Because Yanagidate refers to the first network as the one using global addresses, Yanagidate's first network is network 1 or network 11. It is respectfully submitted that Yanagidate does not show the address realms as described in the rejection, but rather shows the reverse. The terminology is significant and not simply reversible, because in Yanagidate the first network is the only network that requests an address.

With regard to claims 9, 24 and 39 (we assume that claim 38, as renumbered, is meant, because it is parallel to claims 9 and 24), it is submitted that reference number 14a does not identify a terminal but rather a table in address translating device 14. Thus, the argument that "the communication between terminal 11a and terminal 14a uses the same IP protocol layer" has an incorrect foundation and cannot support the rejection.

With regard to claims 13 and 14, parallel claims 28 and 29 and parallel claims 42 and 43 (as renumbered), it is submitted that Yanagidate has no teaching whatsoever of a forced address association with a destination address in a transit network, because no transit network is discussed, and further shows no forced communication through a specified network, because there are no alternate networks available for specification. (We assume that the reference to claims 40-44 in the rejection is intended to refer to claims 39-43 as renumbered.)

The remaining dependent claims not specifically discussed above are distinguishable for at least the same reasons as independent claims 1, 15 and 30. Note that former claim 39, now claims 38, has been amended to make its language consistent with claim 30.

Reconsideration and withdrawal of all rejections based on 35 U.S.C. 102(e) in view of Yanagidate is respectfully requested.

Rejection under 35 U.S.C. § 103

Claims 7-8, 21-23, and 36-38 (presumably claims 36-37 as renumbered were intended) are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yanagidate. Claims 7-8, 21-23, and 36-38 are dependent from claims 1, 15, and 30, respectively. In addition to the reasons discussed above, claims 7-8, 21-23, and 36-38 are patentable over Yanagidate, because these claims cover certain contingent and variable address translation rules. In applicant's invention the presence of specified originating address information in an inbound message packet may affect the address manager's behavior in establishing or using translation rules.

In the Office Action, the Examiner conceded that Yanagidate fails to disclose establishing rules for translation of address information in an inbound message packet to occur in response to the presence or absence of specified originating address information in the message packet. However, the Examiner contended that it is well known in the art that an IP packet comprises at least a source address and a destination address in its header; and that "it would

have been obvious to one having ordinary skilled in the art at the time the invention was made to check the source address of the incoming packet to determine whether the user have access to the private network or secure network – thus preventing hackers or unwanted users from gaining access to the private network". No prior art is cited to support this statement. Even if it were supported, the bare concept of checking the source address does not mean that it would be obvious to effect security by establishing NAT translation rules, in particular the contingent translation rules responsive to originating address information of the kind Applicant teaches and claims.

Applicant respectfully submits that there is no teaching, suggestion, or motivation in Yanagidate to establish a translation rule or establish a contingent/alternative translation rules responsive to a check of the source address of the incoming packet. Yanagidate's address translation connection device functions merely based on a fixed, simple translation rule, embodied in a table. Only by hindsight and speculation, after appreciating the gist of the present invention, can it be argued that Yanagidate's address translation connection device suggests a translation rule responsive to the results of checking of the source address of the incoming packet to determine whether the user should have access to the private network or secure network. Applicant respectfully submits that such hindsight and speculation is not proper. Accordingly, Applicant respectfully requests that the Examiner withdraw the under rejection of claims 7-8, 21-23, and 36-38 (claims 36-37 as renumbered) based on obviousness.

Conclusion

In view of the above, it is respectfully submitted that the present application is in condition for allowance. Reconsideration of the present application and a favorable response are respectfully requested.

If a telephone conference would be helpful in resolving any remaining issues, please contact the undersigned at (612)340-2734.

Respectfully submitted,

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Date: Sept. 5, 2002

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MARKED-UP VERSION SHOWING CHANGES

IN THE CLAIMS

Please amend claims 1, 15, 30 and 38 as follows:

1. (Twice Amended) A network address translation device for facilitating message packet communication between a first application having an internal address valid in a first address realm and a second application in a second address realm comprising:

an address translator for translating [an] the internal address valid in the first address realm into an address valid in the second address realm based on a translation rule and for translating the address valid in the second address realm into the internal address valid in the first address realm;

an address manager for establishing [a] the translation rule by associating [an] the internal address valid in the first address realm with [an] the address valid in the second address realm; and

a control channel communicating with the address manager for receiving from the first application a service request message for [an] the address valid in the second address realm to be associated with [a specified] the internal address of the first application valid in the first address realm and for providing the first application access to the requested address valid in the second address realm to facilitate the first application's communication of the address valid in the second address realm as message packet data to the second application.

15. (Twice Amended) A method for facilitating message packet communication between a first application having an internal address valid in a first address realm and a second application in a second address realm comprising:

providing the first address realm with a network address translation device having an address translator for translating [an] the internal address of the first application valid in the first address realm into an address valid in the second address realm based on a translation rule and for translating the address valid in the second address realm into the internal address valid in the first address realm;

providing an address manager in communication with the address translator for establishing [a] the translation rule by associating [an] the internal address valid in the first address realm with [an] the address valid in the second address realm;

providing a control channel communicating with the address manager;

receiving at the address manager from the first application via the control channel a service request message for [an] the address valid in the second address realm to be associated with [a specified] the internal address of the first application valid in the first address realm; and

providing the first application access to the address valid in the second address realm to facilitate the first application's communication of the address valid in the second address realm as message packet data to the second application.

30. (Twice Amended) A system for establishing message packet communication between a first application having an internal address valid in a first address realm and a second application in a second address realm, wherein the first address realm has an address translator for translating [an] the internal address of the first application valid in the first address realm into an address valid in the second address realm based on a translation rule and for translating the address valid in the second address realm into the internal address valid in the first realm, comprising:

an address manager for establishing [a] the translation rule by associating [an] the internal address valid in the first address realm with [an] the address valid in the second address realm;

a control channel communicating with the address manager; and

software operatively associated with the first application for communicating to the address manager via the control channel a service request message for [an] the address valid in the second address realm to be associated with [a specified] the internal address of the first application valid in the first address realm, for receiving access to the requested address valid in the second address realm, and for controlling communication of [communicating] the address valid in the second address realm [as message packet data to the second application].

38. (Renumbered, then amended) The system of claim 30, wherein the software controls communication of the address valid in the second address realm to facilitate [facilitated is] peer-to-peer application communication.